



To: General Purposes Committee **Date:** November 29, 2019
From: Peter Russell **File:** 10-6125-07-02/2019
 Director, Sustainability and District Energy
Re: **Community Energy and Emissions Plan 2020-2050 Directions**

Staff Recommendation

1. That the directions and associated targets outlined in the report titled “Community Energy and Emissions Plan 2020-2050 Directions” from the Director, Sustainability and District Energy, dated November 29, 2019 be endorsed for the purposes of completing a draft plan and obtaining final public feedback.
2. That staff be directed to develop a Climate Action Strategy, as defined in the report titled “Community Energy and Emissions Plan 2020-2050 Directions” from the Director, Sustainability and District Energy, dated November 29, 2019, that communicates all climate action related plans and strategies for Council consideration.

Peter Russell
 Director, Sustainability and District Energy
 (604-276-4130)

Att. 7

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Community Social Development	<input checked="" type="checkbox"/>	
Parks Services	<input checked="" type="checkbox"/>	
Engineering	<input checked="" type="checkbox"/>	
Building Approvals	<input checked="" type="checkbox"/>	
Development Applications	<input checked="" type="checkbox"/>	
Policy Planning	<input checked="" type="checkbox"/>	
Transportation	<input checked="" type="checkbox"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS:	APPROVED BY CAO

Staff Report

Executive Summary

To facilitate accelerated action and development of an updated Community Energy and Emissions Plan, significant community engagement was undertaken in the spring and fall of 2019 under a branded process (“50 x 30 Advancing Richmond’s Climate Leadership”) to inform the following recommended strategic directions:

1. **Retrofit Existing Buildings** – Accelerate deep energy retrofits to existing residential, institutional, commercial and industrial buildings and shift to low-carbon heating and cooling using in-building systems or district energy.
2. **Transition to Zero Emission Vehicles** – Foster electric mobility, with expanded options for charging at home, at work, and on-the-go personal electric vehicles, electric car share vehicles, e-bicycles / e-scooters.
3. **Carbon Neutral New Buildings and Energy Systems** – All new buildings will meet the top performance level of the BC Energy Step Code starting in 2025, and be powered by low carbon energy systems (in-building or district energy).
4. **Complete Communities** – Accelerate current OCP objectives for compact, complete communities throughout Richmond, with a range of services, amenities and housing choices, and sustainable mobility options within a five-minute walk of homes.
5. **Active Mobility for All** – Prioritize active transportation with investments in walking, rolling and biking infrastructure that is safe, connected, easy to navigate, and accessible.
6. **Support Frequent Transit** – Foster wider use of frequent public transit throughout Richmond by implementing and upgrading transit stops, well integrated with active transportation (walking / rolling, bicycling) and car-sharing networks.
7. **Enhance Green Infrastructure** – Maximize the climate benefits of Richmond’s green infrastructure by improving or expanding existing carbon stores in trees, vegetation and soils.
8. **Transition to a Circular Economy** – Create a circular economy in Richmond that maximizes the value of resources through smart product design, responsible consumption, minimized waste and reimagining how resources flow in a sustainable, low-carbon economy.

The above directions, and the emission targets listed for each sector in this report, will put Richmond on a path to achieve accelerated carbon reduction targets in line with the International Panel on Climate Change (IPCC) 1.5° C global warming limit. Staff are seeking Council endorsement of the proposed directions and associated targets to develop the Community Energy and Emissions Plan (CEEP) 2020-2050, and obtain final community input before presenting the plan to Council for adoption. Staff are also seeking Council support for developing a broader Climate Action Strategy, that will position all of the City’s climate-related policies and programs, into a single document for communication purposes. The CEEP 2020-2050 would be presented to Council for endorsement in 2020, together with revised emission targets for 2030 and 2050, to be referenced in the City’s Official Community Plan.

Origin

At the General Purposes Committee meeting of March 25, 2019, City Council resolved that:

“(1) That the public consultation program defined in the report titled Accelerating Local Action on Climate Change: Community Energy & Emissions Plan (CEEP) Renewal, from the Director, Engineering dated February 27, 2019, to gain feedback from residents and stakeholders regarding the recommended revised greenhouse gas (GHG) reduction target and revised climate action strategies and measures consistent with and in response to the UN’s Intergovernmental Panel on Climate Change report, be endorsed;”

“(2) That the City of Richmond declares and confirms a climate emergency; and”

“(3) That staff report back on:

(a) a specific statement in conjunction with the City’s Community Energy and Emissions Plan;

(b) the consideration of more energy and emissions targets and more often; and

(c) strategies for enforcement relating to the City’s bike lanes.”

This report partly responds to items (1), (3a) and (3b) in the above resolution.

This report supports Council’s Strategic Plan 2018-2022 Strategy #2 A Sustainable and Environmentally Conscious City:

Environmentally conscious decision-making that demonstrates leadership in implementing innovative, sustainable practices and supports the City’s unique biodiversity and island ecology.

2.1 Continued leadership in addressing climate change and promoting circular economic principles.

Analysis

In January 2014, Council adopted the Community Energy and Emissions Plan (CEEP), which included strategies and actions to achieve the citywide greenhouse gas (GHG) emissions reduction commitments expressed in Richmond’s 2041 Official Community Plan (Bylaw 9000). Measures in the 2014 CEEP were projected to reduce Richmond’s GHG emissions by 6% by 2020, and 25% by 2050. ‘Big Breakthrough’ actions were also identified that would need to be achieved to reach the OCP targets of 33% by 2030, and 80% reduction by 2050. Since 2014, the City has since implemented policies, services and programs encompassing both Corporate and community-wide actions. The February 27, 2019 report titled, “Accelerating Local Action on Climate Change: Community Energy and Emissions Plan (CEEP) Renewal”, highlighted Richmond’s successes to date, summarized in Attachment 1.

Richmond’s Greenhouse Gas Emissions Inventory and Forecast

An updated 2007 baseline year emissions inventory through to 2017 was developed for the purposes of assessing future scenarios. The inventory includes factors that the Province of BC has applied to the data from previous reporting years, within the relevant emission categories (e.g., fuel use by transportation and building types). 1,045,000 tonnes of CO₂ equivalent emissions were emitted in 2007 (Figure 1). By 2017, total emissions dropped 4% to 1,006,000 tonnes CO₂e.

Figure 1: 2017 Community Emission Inventory for Richmond, showing Current Plans GHG Emissions Trend to 2030 and 2050, compared with IPCC 1.5° C Reduction Target

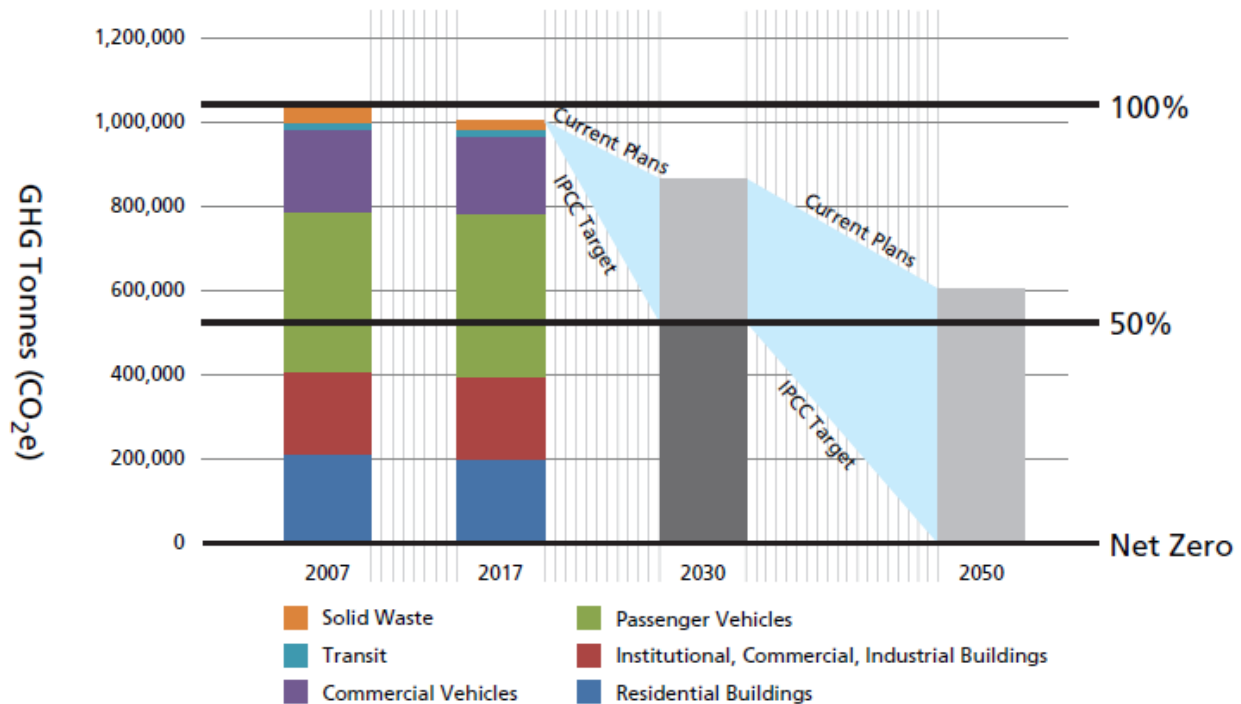


Figure 1 projects total GHG emissions in Richmond in 2030 and 2050 under a scenario, where current approved energy and climate-related policies and plans at the local, provincial and federal government level are fully implemented. This includes local adoption of the BC Energy Step Code, a 70% emissions-free target for all Lulu Island District Energy utilities, and realization of compact community policies as set out in the Official Community Plan, as well as existing federal and provincial policies for zero emission vehicles and low-carbon fuel standards.

Figure 1 also shows an IPCC Target emissions reduction trend line, in which greenhouse gas emissions are 50% below the 2007 baseline year by 2030, and achieve net zero carbon emissions by 2050, commensurate with global emission reductions required to limit global average warming to 1.5° C above pre-industrial temperatures.

Deeper Emission Reductions are needed to Achieve the 1.5° C Global Warming Limit

Figure 1 indicates positive news for Richmond with respect to forecasted emissions reduction under a Current Plans scenario, resulting in a citywide GHG emission reduction of 25% from the 2007 baseline by 2030, and 50% reduction by 2050. The scenarios in Figure 1 include expected population growth in Richmond, from 2020 to 2050. The Current Plans forecast delivers an annual reduction of 10,692 tonnes CO₂e between 2020 and 2030, and 13,100 tonnes CO₂e from 2030 to 2050. While these emission reductions are impactful, they are far short of the level needed to meet the IPCC targets. Achieving these targets will require accelerated GHG reduction and climate change actions beyond measures already in place, as shown in Table 1.

Table 1: Forecasted GHG Emissions Reductions – Current Plans and IPCC 1.5° C Limit

	2007 Baseline tonnes CO ₂ e	2017 tonnes CO ₂ e	2030 tonnes CO ₂ e	2050 tonnes CO ₂ e
Current Plans Forecast				
Total Community Emissions	1,045,000	1,006,000	867,000	605,000
Average Reduction Per Year			10,692 (2017-2030)	13,100 (2030-2050)
IPCC 1.5° C Target				
Total Community Emissions	1,045,000	1,006,000	503,000	0
Average Reduction Per Year (Current Plans + new measures)			38,692 (2017-2030)	25,150 (2030-2040)

Community and Stakeholder Engagement

The community has informed the development of the directions that set the policy framework for Richmond’s proposed CEEP 2020-2050. Under the branded process “50 x 30 Advancing Richmond’s Climate Leadership” the following engagement program used a range of input channels and formats to receive feedback from over 1,000 people:

- **Community Events:** Community Ideas Fair (June 2019) and Community Directions Fair (October 2019) at City Hall (275 attendees in total).
- **Workshops:** Three community and stakeholder workshops (Fall 2019).
- **Digital Engagement:** Print and social media and online contests resulted in 492 people interactions with #Rmd50x30, and 550 responses were received in two Let’s Talk Richmond surveys.
- **Outreach Events:** City booth and ‘Sustain-a-buck’ voting opportunities at nine (9) outdoor events; the voting particularly popular with children, youth and young families.
- **Community Presentations:** From City staff to advisory committees, professional organizations and citizen environmental groups between June and November 2019.
- **Youth Engagement:** Youth-oriented ‘Now-Wow-How!’ workshop at a local school, and a youth focus group, organized by students from Simon Fraser University.

Attachments 2 (summary) and 3 (all feedback received) summarize all of the feedback received from the engagement program in 2019.

Tools for Local Government Climate Action

Staff developed a climate action toolkit, with six categories of action that the City can utilize individually, or in combination, to accelerate community GHG emissions reductions (Figure 2).

Figure 2: City of Richmond Climate Action Toolkit



Community engagement participants were asked to rank the relative usefulness or applicability of these tools to advance action within each climate action direction area (Attachment 4: Richmond Climate Action Toolkit Definitions). Feedback from the public and stakeholder organizations indicated support for using the levers the City has available to accelerate action.

Attachment 5: Eight Climate Action Directions for Richmond – Context Boards, and Attachment 6: Eight Climate Action Directions for Richmond – Survey Boards, contain consultation panels that were developed for the *50% by 2030 Advancing Richmond’s Climate Leadership* autumn 2019 engagement phase. The Survey Boards (Attachment 6) in particular outline potential actions that could be taken, as well as relative level of City or partner resources that would be required. The roll-up results from workshops, presentations, community events and the online survey, which have been very useful for identifying actions that are particularly important in meeting accelerated greenhouse gas emission targets within each of the proposed directions.

Proposed Climate Action Directions – Setting the Framework for a New Plan

In ramping up action on energy and climate in Richmond, eight strategic directions have been identified where the role of the City of Richmond, as well as local residents, businesses, senior levels of government, non-profit organizations, external partners, and the design and development community, can play a lead or supporting role in achieving the City’s targets.

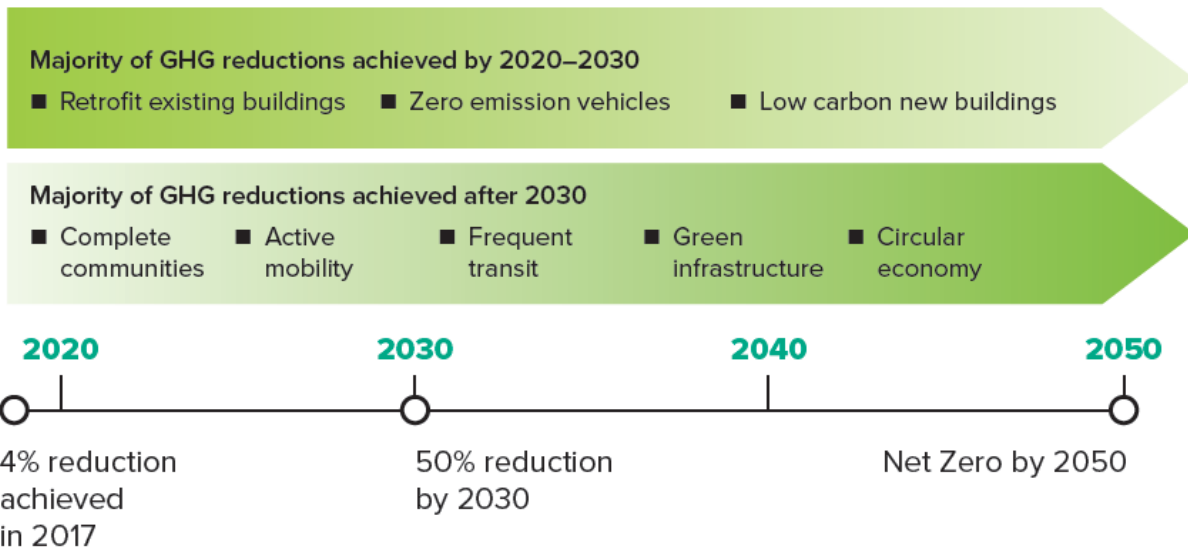
In the coming decade (2020-2030), Richmond will need to achieve significant emission reductions in new and existing buildings, and major progress on the transition to zero emission vehicles (Figure 3). Three directions are identified as ‘major moves’ and are key to meeting the 2030 GHG emission reduction target, and signaling that Richmond is on track to meet the IPCC 1.5° C global warming limit commensurate with Council’s climate emergency declaration

Equally significant, but taking place over a longer trajectory (2020 to 2050), are actions with respect to complete communities, active mobility, public transit, green infrastructure, and circular economy. The cumulative impact of these directions will be most evident over the mid to longer term, as Richmond heads toward a carbon neutral community.

The City of Richmond cannot achieve deep GHG reduction targets alone; supportive legislation (e.g. Energy Step Code changes, BC Zero Emission Vehicle mandate), and resources from senior levels of government (e.g. transit) will be critical for success. Partnerships and collaboration with utilities, municipal governments, local businesses and Richmond residents will also be required.

Figure 3: Getting to Net Zero by 2050 – A Strategic Timeline for Richmond

TIMING OF EMISSION REDUCTIONS: 2020–2050



A short summary of each strategic direction is included below, identifying bold actions that collectively will reduce community greenhouse gas emissions 50% by 2030, and signalling that Richmond is making significant progress toward the 2050 goal of a carbon neutral community. One-page summaries of each direction are also included in Attachment 7, detailing the shared benefits of achieving the objectives within the direction, as well as enabling City policies, plans and successes to date. Engagement highlights are also included, matched with the top three implementation tools (from consultation results) that were viewed as particularly effective.

RETROFIT EXISTING BUILDINGS

Major Move for 2020-2030

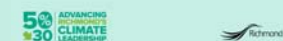
DIRECTION 1

Accelerate deep energy retrofits to existing residential, institutional, commercial and industrial buildings and shift to low-carbon heating and cooling using in-building systems or district energy.



Carbon Reduction Impact by 2030:

- ✓ Retrofit buildings representing half of all GHG emissions, achieving an average GHG reduction of 70% in these buildings, through partnerships with senior levels of government, utilities and building operators.
- ✓ Where possible, apply the anticipated future Provincial energy retrofit code when implemented, as per Clean BC Plan.
- ✓ Achieving net zero requires 25% of remaining gas use in existing buildings to be renewable natural gas by 2050.



TRANSITION TO ZERO EMISSION VEHICLES

Major Move for 2020-2030

DIRECTION 2

Foster electrical mobility for all residents and businesses in Richmond, with expanded options for charging at home, at work, and on-the-go personal electric vehicles, electric car share vehicles, e-bicycles / e-scooters.



Carbon Reduction Impact by 2030:

- ✓ Reduce total annual GHG emissions from light-duty vehicles in Richmond to 50% below 2017 levels by 2030.
- ✓ Reduce total annual GHG emissions from heavy-duty vehicles in Richmond to 33% below 2017 levels by 2030.

CARBON NEUTRAL ENERGY FOR NEW BUILDINGS

Major Move for 2020-2030

DIRECTION 3

All new building applications will meet the applicable (for building type) top performance level of the BC Energy Step Code starting in 2025, and be powered by low carbon energy systems (in-building or district energy).



Carbon Reduction Impact by 2030:

- ✓ Achieve 80% low-carbon energy supply for heating and cooling district-energy-connected buildings in Richmond.
- ✓ All new buildings completed after 2025 (not connected to district energy) will consume 50% less energy and emit two-thirds less greenhouse gases than new buildings built in 2017.

COMPLETE COMMUNITIES

DIRECTION 4

Accelerate current OCP objectives for compact, complete communities throughout Richmond, with a range of services, amenities and housing choices, and sustainable mobility options within a five-minute walk of homes.



Carbon Reduction Impact by 2030:

- ✓ Extend Frequent Transit with supportive zoning, enabling sufficient number of residents and transit-supportive service levels.
- ✓ Extend existing complete community policies to expand access to walkable neighbourhood services.

ACTIVE MOBILITY FOR ALL

DIRECTION 5

Prioritize active transportation with investments in walking, rolling and biking infrastructure that is safe, connected, easy to navigate, and accessible.



Carbon Reduction Impact by 2030:

- ✓ Increase bicycle ridership and micro electric mobility to reach 10% of all trips taken by 2030, with further increases to 2050.
- ✓ Increase walk / roll trips to 18% by 2030, with further increases to 2050.

SUPPORT FREQUENT TRANSIT

DIRECTION 6

Foster wider use of frequent public transit throughout Richmond by implementing and upgrading transit stops, well integrated with active transportation (walking / rolling, bicycling) and with car-sharing networks.



Carbon Reduction Impact by 2030:

- ✓ Increase transit mode share from 12.5% (2017) to 22% by 2030, with further increases to 2050.

ENHANCE GREEN INFRASTRUCTURE

DIRECTION 7

Maximize the climate benefits of Richmond's green infrastructure by improving or expanding existing carbon stores in trees, vegetation and soils.



Carbon Reduction Impact by 2030:

- ✓ By 2030, measures have been identified and initiated sufficient to sequester and maintain 200,000 additional tonnes of CO₂e per year by 2050.
- ✓ Achieving this target in 2050 could provide Richmond a 20% carbon reduction 'buffer' equivalent to 20% of Richmond's GHG emissions relative to the 2007 base year.

TRANSITION TO A CIRCULAR ECONOMY

DIRECTION 8

Create a circular economy in Richmond that maximizes the value of resources through smart product design, responsible consumption, minimized waste and reimagining how resources flow in a sustainable, low-carbon economy.



Carbon Reduction Impact by 2030:

- ✓ By 2030, the City of Richmond's Circular Economic Strategy will be fully implemented, driving innovation by the City and local business community in material use, waste reduction and emission reduction from the manufacture, transport and retailing of products and services.

Climate Action Strategy

It is proposed that key directions and actions from the completed Community Energy and Emissions Plan (CEEP) 2020-2050 will be incorporated into a broad Climate Action Strategy that positions all of the City's climate-related policies and programs into a single document for communication purposes. This will include leadership for the City's corporate buildings, and continued efforts to improve the climate adaptation and resiliency of Richmond's infrastructure.

Leadership on Corporate Energy and Emissions

For over two decades, the City of Richmond has taken action to improve energy efficiency and reduce GHG emissions from corporate operations and contracted services, including ongoing implementation of the 2013 Green Fleet Action Plan and the Energy Management Program for Corporate buildings (see Attachment 1). The City has achieved net carbon neutral operations since January 2013 by offsetting all remaining GHG emissions from Corporate activities. Key measures have also been implemented to protect municipal operations from potential climate impacts. The new Climate Action Strategy will identify additional opportunities for emission reduction, energy conservation, and climate resiliency within the City's corporate and contracted operations, and include recommendations for continued leadership on climate change.

A People-Centred Plan

It is staff's intent to bring forward an updated Community Energy and Emissions Plan that identifies people-centred initiatives and the shared benefits of action on energy use and climate change. As the Plan is further developed in 2020, recommended policies, programs and incentives will be informed by considerations of wellness, inclusion, equity and fairness. Critically, the Plan will also recognize that some members and groups in the community will be more exposed or vulnerable to the negative impacts of climate change, such as extreme weather or wood smoke in the regional air shed, due to housing that is poorly insulated and/or without adequate filtered mechanical ventilation. The Plan will incorporate these considerations as implementation actions are identified in 2020 with respect to improving climate resiliency.

Implementation Resources

The renewed Community Energy and Emissions Plan will include a comprehensive set of prioritized implementation actions and order of magnitude costs. Given the need to double the City's actions, staff intend to bring forward a staffing request to support implementation of recommended program and policy actions.

Next Steps

With Council approval of the climate action directions, staff will proceed on the following:

1. Integrate the Directions into a revised Community Energy and Emission Plan 2020-2050;
2. Identify specific initiatives and policies that improve the resiliency of Richmond to the effects of climate change for each Direction;
3. Further define community wellness, inclusion, equity and fairness objectives for the CEEP 2020-2050;
4. Conduct a final phase of community engagement in 2020; and
5. Present the CEEP 2020-2050 and Climate Action Strategy for Council endorsement, to include revised greenhouse gas emission reduction targets for 2030 and 2050 in the OCP.

Financial Impact

None.

Conclusion

In response to Council's motion recognizing a climate emergency in March 2019, significant community engagement occurred in the spring and fall of 2019, with results informing eight broad directions for Richmond's revised Community Energy and Emissions Plan (CEEP 2020-2050). During the public engagement program, these directions played a key role in communicating potential actions and strategies that could be advanced to achieve accelerated community GHG emission reductions in line with the IPCC 1.5° C global warming limit. With Council endorsement of consultation results and directions, staff will proceed with the final phase of analysis and community consultation, and present the CEEP 2020-2050 and Climate Action Strategy for Council consideration in 2020.

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- Att. 1: City of Richmond Climate Action Leadership – Reducing GHG Emissions
 2: Engaging our Community – At a Glance Results
 3: Engaging our Community – Results in Detail
 4: Richmond Climate Action Toolkit Definitions
 5: Eight Climate Action Directions for Richmond – Context Boards
 6: Eight Climate Action Directions for Richmond – Survey Boards
 7: Eight Climate Action Directions for Richmond – Carbon Reduction Impacts by 2030